

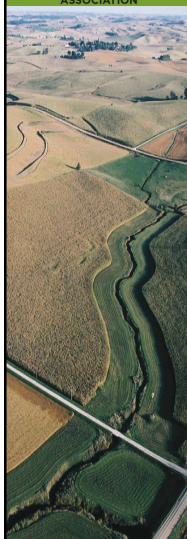


Iowa Rivers and Waterways Study Committee

Todd Sutphin
Iowa Soybean Association
December 10, 2013



Iowa Soybean Association Environmental Programs and Services



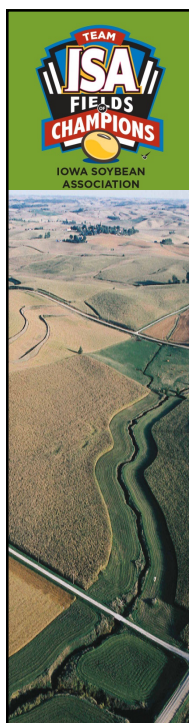
- Advance agricultural leadership for environmental quality by developing, applying, and promoting programs that assist producers to perform agronomically and economically
- Develops policies and programs that help farmers expand profit opportunities while promoting environmentally sensitive production using the soybean checkoff and other resources.
- The Association is governed by an elected volunteer board of 21 farmers.
- Largest State-based row commodity association in U.S. serving 45,000 Iowa soybean farmers.



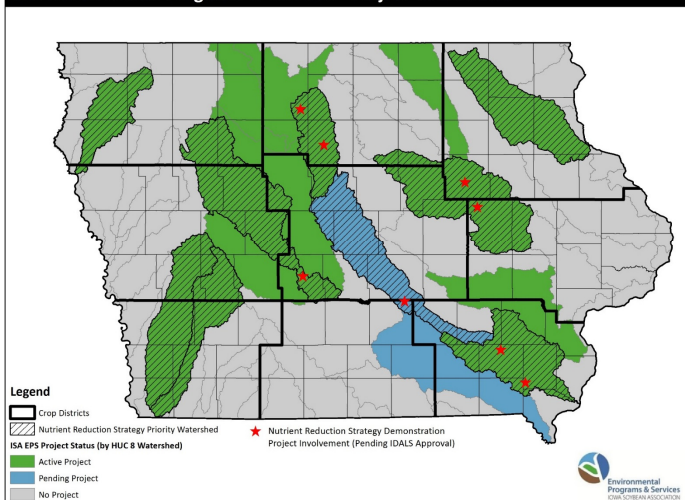


ISA Environmental Programs and Services

- Technical assistance for farmers, watersheds and organized stakeholder groups
- Leveraging farmer investment with public – private partnerships
- Monitoring and assessment – Data management and analysis
- Continuous Improvement through progressive planning
- Adaptive management framework – PLAN, DO, CHECK, ACT
- Targeting for cost effectiveness and measuring outcomes for performance
- Public education, communication and outreach
- Management evaluation and reporting



ISA Environmental Programs & Services - Project Watersheds

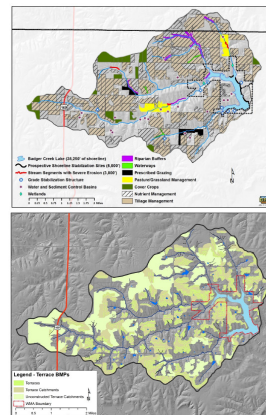


225 farms
65 defined watersheds
 -39 active and 26 supporting ~ 6 million acres
 - over 35 public and private partners.



Watershed Services - Planning

- A comprehensive plan for the watershed (follows IDNR/EPA watershed planning protocol)
- Assessment; Inventory Resource Concerns
- Goals/Objectives/Actions
- Infield/Edge of Field
- Set of integrated solutions; no silver bullet
- Implementation



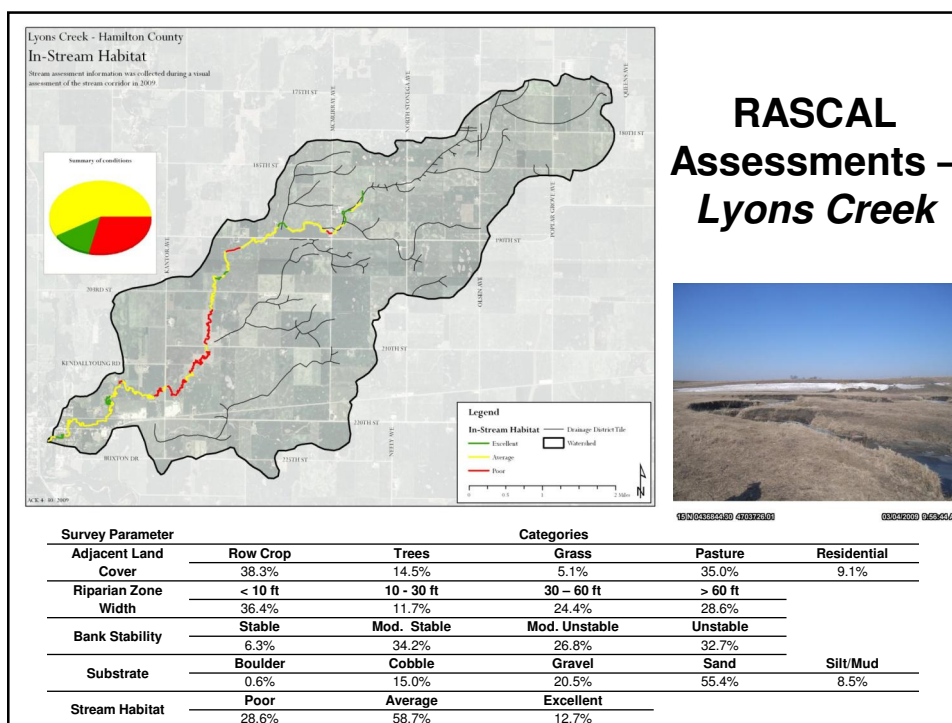
Rapid Assessment of Stream Conditions Along Length (RASCAL)


- Assess in-stream & near-stream conditions; use GPS technology to provide continuous stream condition data for watershed



- Results are intended to assist watershed groups identify priority areas for targeted conservation practices / BMPs.
- Land use assessment – help target upland BMPs.





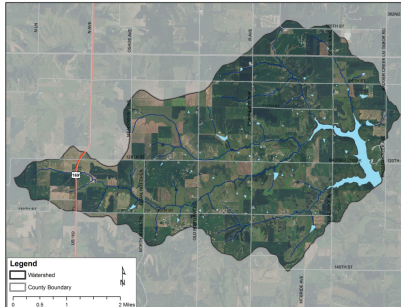


Badger Creek Lake Watershed Goals and Objectives

Goal 1: Reduce non-point source pollution to at or below TMDL levels in the Badger Creek Lake watershed while maintaining agricultural productivity.

Objective 1: Reduce sediment delivery to Badger Creek Lake by 7,078 tons within 8 years, and an additional 3,805 tons by year 20 for a 10,883 ton per year or 74% load reduction.

Objective 2: Reduce phosphorus delivery to Badger Creek Lake by 9,202 pounds within 8 years, and an additional 4,945 pounds by year 20 for a 14,147 pounds per year or 74% load reduction.



Badger Creek Lake Watershed

Table 9. Summary of Best Management Practices.

Upland Practices	Targeted Areas	Erosion Target Type	Treatment Type	Overall Goal (Acres/Practices)	Sediment Reduction Efficiency	Phosphorus Reduction Efficiency	Erosion Reduction (t/y)	SD Reduction (t/y)	P Reduction (lbs)
Cover Crops ¹	Cropland	Sheet & Rill Erosion	Source Control	400	50%	50%	687.00	171.75	223.28
Grassed Waterways	Cropland	Ephemeral Gullies	Source Control	75	30%	-	154.58	108.20	140.66
Bioreactor	Cropland	NA	Source Control	1(#)	-	-	-	-	-
Grade Stabilization Structures	Cropland/ Park	Gully Erosion	Trap	9(#)- 459	90%	90%	2,838.00	1,986.60	2,582.58
Water and Sediment Control Basins	Cropland	Sheet & Rill Erosion	Trap	20(#)- 1,224 ac	90%	90%	7,567.99	1,892.00	2,459.60
Nutrient Management	Cropland	NA	Source Control	5,500	-	-	-	-	-
Terraces ³	Cropland	Sheet & Rill Erosion	Trap	200,000 (ft) - 2,443 ac	90%	50%	5,082.75	1,270.69	1,651.90
Prescribed Grazing	Pasture	Sheet & Rill Erosion	Source Control	90	25%	25%	17.55	4.39	5.70
Residue & Tillage Management(No Till/Strip Till) ²	Cropland	Sheet & Rill Erosion	Source Control	4,000	50%	50%	13,740.00	3,435.00	4,465.50
Riparian, In-Stream, Edge of Field Practices									
Pasture/Grassland Management	Pasture	Streambank Erosion	Source Control	200	50%	50%	78.00	19.50	25.35
Riparian Buffers	Cropland	Sheet & Rill Erosion	Trap	50	45%	45%	154.58	38.64	50.24
Wetland Restoration	All Sources	All Sources	Trap	2(#)- 5,225 ac	20%	20%	5,291.27	1,322.82	1,719.66
Streambank Protection	Streambank	Streambank/ Shoreline Erosion	Source Control	3,800 (ft)	90%	90%	350.00	315.00	409.50
Shoreline Protection	Shoreline	Shoreline Erosion	Source Control	5,000 (ft)	100%	100%	318.00	318.00	413.40
TOTAL							10,882.59	14,147.36	

Badger Creek Lake Watershed Management Plan

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Badger Creek Lake Watershed - Implementation

Table 12. Implementation schedule.

Goal 1	Obj. 1&2	Phase 1			Phase 2			Phase 3			Phases 4 & 5		
		Years 1-4			Years 5-8			Years 9-12			Years 13-20		
		Units (Acres/ Practice)	SD Reduction (tons)	P Reduction (lbs)	Units (Acres/ Practice)	SD Reduction (tons)	P Reduction (lbs)	Units (Acres/ Practice)	SD Reduction (tons)	P Reduction (lbs)	Units (Acres/ Practice)	SD Reduction (tons)	P Reduction (lbs)
	Cover Crops (340)	100	42.9	55.8	100	42.9	55.8	100	42.9	55.8	100	42.9	55.8
	Grassed Waterways (412)	30	43.3	56.3	30	43.3	56.3	15	21.6	28.1	--		
	Grade Stabilization Structures (410)	6(#)	1,324.4	1,721.72	3(#)	662.2	860.86	--			--		
	Water and Sediment Control Basins (638)	10(#)	946	1,229.80	5(#)	473	614.9	5(#)	473	614.9	--		
	Nutrient Management (590)	2,000	0	0	1,500	0	0	1,000	0	0	1,000	0	0
	Bioreactor (747)	1(#)	0	0	--			--			--		
	Terraces (600)	70,000 (ft.)	444.7	578.2	50,000 (ft.)	317.7	413.0	40,000 (ft.)	254.1	330.4	40,000 (ft.)	254.1	330.4
	Prescribed Grazing (528)	35	1.70	2.21	35	1.70	2.21	10	.5	.63	10	.5	.63
	Residue & Tillage Management(No Till/Strip Till) (329)	1,600	1,374	1,786.2	1,200	1,030.5	1,339.7	600	515.3	669.8	600	515.3	669.8
	Pasture/Grassland Management (512)	80	7.8	10.1	60	5.9	7.6	40	3.9	5.1	20	2.0	2.5
	Riparian Buffers (393)	20	15.5	20.1	10	7.7	10.0	10	7.7	10.0	10	7.7	10.0
	Wetland Restoration	--			--			1(#)	1,183.6	1,538.6	1(#)	139.2	181.0
	Streambank Protection	1,000 (ft)	82.9	107.8	1,000 (ft)	82.9	107.8	1,000 (ft)	82.9	107.8	800 (ft)	66.3	86.2
	Shoreline Protection	1,000 (ft)	63.6	82.7	1,000 (ft)	63.6	82.7	1,500 (ft)	95.4	124.0	1,500 (ft)	95.4	124.0
TOTAL Reduction		4,346.8	5,650.9		2,731.4	3,550.9		2,680.9	3,485.1		1,123.4	1,460.3	

Oxbows

- Abandoned stream meander
- Post settlement alluvium
- Topeka shiner habitat
- Potential denitrification practice

Oxbow Restoration within Boone River Watershed supports biodiversity and water quality goals

EMMET		WINNEBAGO	WORTH
	KOSSUTH		
PALO ALTO		HAWK	CERRO GORDO
POCAHONTAS	HUMBOLDT	WRIGHT	FRANKLIN
CALHOUN	WEBSTER	HAMILTON	HARDIN
ROLL	GREENE	BOONE	STORY
			MARSH

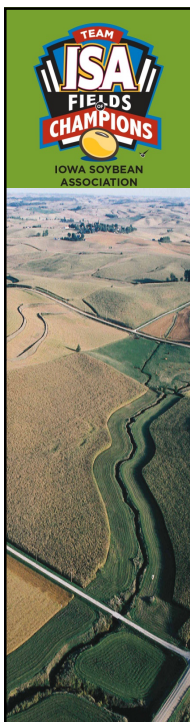
Boone River Watershed Oxbows

Lyons Creek Watershed Project

Mississippi River Basin Initiative Project

Water Quality Initiative Project





Highlights/Lessons Learned

- Local commitment and participation/Locally-led
- Planning is essential (farm/watershed)
- Infrastructure to gain capacity
- Adaptive Management or Plan-Do-Check-Act
- Alignment (agronomists, co-op, CCA)
- Program Delivery; Tech. Assist. (public/private)
- No “silver bullet”
- TIME

Next steps:

- Update existing plans; interim goals; adaptive management – continual improvement
- Develop watershed plans for priority watersheds identified in State Nutrient Strategy



Thank You

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